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# WHAT AMERICAN CITIES ARE DOING FOR THE HEALTH OF SCHOOL CHILDREN

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## *I. Medical Inspection.*

A little more than sixteen years ago, in 1894, and as a result of some serious epidemics among school children, the city of Boston divided its public schools into fifty districts and appointed fifty school doctors to begin medical inspection in them. The Department of Child Hygiene of the Russell Sage Foundation is now making an investigation to find out what progress has been made in this field in the sixteen years that have elapsed since this beginning.

There are in this country some 1,285 cities having organized systems of graded public schools under superintendents. The investigation covers these cities, and up to the present time full returns have been received from 758 of them. For purposes of tabulating results, the several states of the Union have been divided into five groups, following the order adopted by the United States census. These groups, with the states comprising them, are as follows:

*North Atlantic Division.*—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania.

*South Atlantic Division.*—Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.

*South Central Division.*—Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Arkansas, Oklahoma.

*North Central Division.*—Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

*Western Division.*—Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, California.

Forty-five per cent of the cities reporting have regularly organized systems of medical inspection in their public schools. The

number of cities reporting, the number having systems of medical inspection, and the per cent having such systems in each group are shown in the following table:

CITIES HAVING MEDICAL INSPECTION

Division.	Cities reporting	Cities having medical inspection	Per cent having medical inspection
North Atlantic .....	308	182	59
South Atlantic .....	45	15	38
South Central .....	67	25	37
North Central .....	286	84	29
Western .....	52	31	60
United States .....	758	337	45

The percentage figures in the final column show that medical inspection has made the best progress in the North Atlantic and Western Divisions, where about sixty per cent of the cities have taken up the new work. It has made substantially equal progress in the two Southern Divisions, where the percentages are thirty-seven and thirty-eight, and the poorest showing is made by the North Central Division, where only twenty-nine per cent of the cities have medical inspection systems.

There are two standard types of administration, that under the board of health and that under the board of education. In the early days of medical inspection, practically all the systems were administered by local boards of health, but in recent years the tide has turned the other way, until at the present time about one-quarter of the cities have systems under their boards of health, and in the remaining three-quarters the board of education is the controlling body. The facts for the different divisions are shown in the following table:

THE ADMINISTRATION OF MEDICAL INSPECTION AMONG 337 CITIES REPORTING

Division	By boards of health	By boards of education
North Atlantic .....	49	133
South Atlantic .....	5	10
South Central .....	8	17
North Central .....	16	68
Western .....	8	23
United States .....	86	251

The professional employees who are administering these efforts  
(495)

in behalf of the health of school children include 1,194 school doctors, 371 nurses, and 48 dentists.

In general, medical inspection of schools has two main functions or divisions. The first is inspection for the detection of communicable disease. This relates primarily to the immediate protection of the community, and is in general the first work undertaken. In many states the authorities are content with this purely preventive work, and attempt nothing more elaborate. The second division of the work consists of physical examinations of children, which aim to discover their physical defects and look to securing and maintaining the health and vitality of the individual child. Among the 337 cities reporting, 301 include systems for the detection of contagious diseases, but only a little more than half of them undertake physical examinations. Moreover, the cities attempting physical examinations are mostly in the North Atlantic division, where the work is oldest and is most highly developed. In the table which follows, figures are presented showing the number of cities in each division including inspection for the detection of contagious diseases and physical examinations in their medical inspection systems.

INSPECTION FOR THE DETECTION OF CONTAGIOUS DISEASES AND EXAMINATIONS  
FOR THE DETECTION OF PHYSICAL DEFECTS

Division	Inspection for contagious diseases	Inspection for physical defects
North Atlantic .....	173	111
South Atlantic .....	14	6
South Central .....	23	9
North Central .....	67	26
Western .....	24	15
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United States .....	301	167

There is one branch of medical inspection work which is even more universal than the inspection for the detection of contagious diseases and this is the testing of pupils to discover defects of vision and hearing. This testing has not been included under the general heading of examinations for the detection of contagious diseases for the reason that it is often carried on where there is no organized system of medical inspection and the tests are frequently given by teachers rather than by doctors or oculists. How common these tests are is shown by the fact that although only 337 cities report regular systems of medical inspection, 449 report that vision and

hearing tests are conducted in their schools by teachers, and in addition there are 189 cities where the tests are conducted by doctors. The detailed facts as to tests by doctors and teachers are as follows:

VISION AND HEARING TESTS CONDUCTED BY DOCTORS AND BY TEACHERS

Division	Tests by doctors	Tests by teachers
North Atlantic .....	95	199
South Atlantic .....	9	15
South Central .....	14	25
North Central .....	54	184
Western .....	17	26
	<hr/>	<hr/>
United States .....	189	449

The fact has already been mentioned that 1,194 school doctors are employed in the work of medical inspection in the cities reporting. More than half of these are in the North Atlantic states, and more than half of the remainder in the North Central states. Their distribution in the several divisions is as follows:

NUMBER OF SCHOOL DOCTORS EMPLOYED IN MEDICAL INSPECTION

Division	Number of doctors
North Atlantic .....	729
South Atlantic .....	45
South Central .....	31
North Central .....	342
Western .....	47
	<hr/>
United States .....	1,194

The employment of school nurses in the work of medical inspection is a comparatively modern development. Less than a quarter of the cities reporting medical inspection employ school nurses, and of these more than half are in the North Atlantic Division. The total number of cities employing nurses is seventy-six, and the total number of nurses employed 371. Of these, thirty-nine cities, employing 242 nurses are in the North Atlantic Division. In the South Atlantic states, only four cities employ school nurses, and the total number employed is only ten. The lowest record is made by the South Central states, where two cities employ one nurse each. In the North Central states twenty-one cities employ ninety-six nurses, and in the Western Division there are ten cities with twenty-one nurses.

The school dentist is a still more recent development of medical inspection than the school nurse. In the entire country only forty-eight cities employ school dentists, of which eighteen are in the North Atlantic Division, three in the South Atlantic, two in the South Central, twenty-one in the North Central, and four in the Western Division.

The salaries paid to school doctors and school nurses vary from nothing to nearly \$4,000. In many localities the local medical association conducts medical inspection for a year or two without cost to the city in order to demonstrate its value. This results in the record showing that in a considerable number of the cities the doctors receive no pay at all for their services. It may also be a factor in bringing about the extremely low salaries that are received by the school doctors in many cities after they are given regular payment.

#### ANNUAL SALARIES OF DOCTORS AND NURSES IN ALL CITIES REPORTING

	Number of cities where doctors receive salary indicated	Number of cities where nurses receive salary indicated
No salary .....	30	2
\$1 -100 .....	42	4
\$101-200 .....	34	..
\$201-300 .....	32	2
\$301-400 .....	21	..
\$401-500 .....	19	..
\$501-600 .....	14	15
\$601-700 .....	1	13
\$701-800 .....	9	19
\$801-900 .....	4	11
\$901-1,000 .....	11	..
\$1,001-1,500 .....	14	2
\$1,501-2,500 .....	3	..
\$3,500-4,000 .....	2	..
Fees according to service.....	16	1

The same factors result in similar conditions among school nurses. The preceding table shows the number of cities in which the salaries of doctors and nurses fall within the salary limits named in each group. That is to say the first line shows that there are thirty cities in which the doctors donate their services and two in which the school nurses do the same thing. The second line indicates that there are forty-two cities in which the salaries paid to the

doctors are between \$1 and \$100 per annum and four cities where the nurses are in receipt of similar salaries.

The table shows that there are more cities paying their school physicians at a rate of between \$1 and \$100 per year than there are paying salaries of any other size. The average salary on the other hand is somewhat higher than this. If computed on the basis of the table and without taking into account the number of doctors employed in each individual city the average salary would fall within the group receiving from \$201 to \$300 per annum. In a similar way the second column of the table shows that there are more cities paying their school nurses from \$701 to \$800 per annum than there are paying any other salary. But the average salary would fall within the group from \$601 to \$700 per year.

It has been stated that the first system of medical inspection was inaugurated by Boston in the year 1894, and historically this statement seems to be correct. Nevertheless one city claims to have been doing enough work for the health of school children to warrant it in reporting that it had a system of medical inspection in the year 1890. Ten years later, in 1900, eight cities had such systems, and in the five following years the increase had brought the total number up to forty-four. The real development of medical inspection has come in the past five years, during which the number has increased from less than fifty to more than 300. Out of the 337 cities reporting systems of medical inspection, only 312 state the year in which work was first begun. From the records of these cities a table has been compiled showing the total number of cities having medical inspection systems in each year since the first city began. These facts follow:

NUMBER OF CITIES HAVING SYSTEMS OF MEDICAL INSPECTION IN EACH YEAR  
FROM 1890 TO 1910

Year	Number of cities	Year	Number of cities
1890 .....	1	1904 .....	28
1894 .....	3	1905 .....	44
1897 .....	4	1906 .....	63
1898 .....	7	1907 .....	90
1900 .....	8	1908 .....	135
1901 .....	14	1909 .....	211
1902 .....	20	1910 .....	312
1903 .....	23		

The detailed reports for the separate cities and the tabulations bringing the facts together for the individual states contain a vast amount of material of value and interest, but of such bulk that it would be impossible to present it here. The total number of items is about 25,000. It is our intention to compile it in full and present it in a final report of this investigation. As showing the extremes among the reports of the different states, it is interesting to note that the best record of all is made by the State of New Jersey, where thirty-four cities reported, and every one of them has an organized system of medical inspection. Massachusetts is a close second; among eighty-six cities all but two have medical inspection systems and in Colorado among six cities reporting, there is only one not having medical inspection. The states at the other extreme of the scale which report no cities with medical inspection are Vermont, Florida, Idaho and Montana.

## *II. Hygiene of the School Room*

The gathering of the salient facts regarding the present status of medical inspection was not the sole object of the investigation now under way. A second and related purpose was to discover what the different cities are doing in the administration of the health interests of their school children in such matters as recesses, the cleanliness of floors and windows, precautions as to drinking cups and instruction in such matters as the prevention of tuberculosis and the giving of first aid in emergencies.

It is generally taken as a matter of course that the outdoor recess is part of the regular program in all elementary grades, and in both sessions of the day school. Moreover such is the case in large sections of the country, but the data gathered show that it is far from being true in the North Atlantic States, and that in the other divisions there are cities where the children are not given outdoor recesses. The figures showing the number of cities having outdoor recesses in their elementary classes, and the per cent of such cities, are given in the table on page 257.

Another subject for investigation was the extent to which individual drinking cups and sanitary fountains are in use in the different cities. As the information was gathered, the city recorded as having sanitary drinking fountains or individual cups has at least made a beginning in these directions. The figures given here



do not indicate what proportion of the schools of each city have these appliances. They merely indicate that at least a beginning has been made. The figures show that in twenty-five per cent of the cities individual drinking cups are in use, and in seventy-five per cent the schools have sanitary drinking fountains. These figures do not mean that all cities are supplied with either individual drinking cups or sanitary fountains, for the data include many duplicates. A considerable number of cities have schools equipped with both individual cups and sanitary fountains, and, on the other hand, some cities have not introduced either the one or the other.

NUMBER AND PER CENT OF CITIES HAVING OUTDOOR RECESSES IN ALL  
ELEMENTARY GRADES

Division	Cities reporting	Having out- door recess	Per cent hav- ing recess
North Atlantic .....	308	259	84
South Atlantic .....	45	44	98
South Central .....	67	67	100
North Central .....	286	264	92
Western .....	52	49	94
United States .....	758	683	90

The group of facts pertaining to the hygiene of the school room was gathered from the entire 758 cities from which returns have been received to date. They show that in considerably over half of the cities moist cloths are used for dusting; in nearly all of them dust-absorbing compounds are used in sweeping; and that in nearly a tenth of them the schools are equipped with vacuum cleaners.

But a slight knowledge of housekeeping is necessary to make one realize that the appliances used for cleaning are not of such importance as the frequency with which they are employed. Having this in mind we have gathered the facts as to the frequency with which the school room floors are washed and swept, and the windows washed in the public schools of these 758 cities. The facts, as reported, are shown in the table on page 258.

The figures are illuminating as they are unique. Probably these details of municipal housekeeping have not before been gathered. They seem to indicate that the most common practice sanctions the washing of class room floors either once a month, or once in

three months, although it is by no means rare to find cities in which they are washed once in five months or never washed at all.

In the great majority of the cities school room floors are swept once a day, but nevertheless there remains a balance of nearly two hundred cities in which they are swept less frequently. Six cities report that they are swept only once a week; two cities once a month; two cities that they are swept only once in five months.

More cities seem to wash their class room windows once in three months than on any other regular schedule. On the other hand one city reports washing them once a day, and five cities that they never wash them at all.

NUMBER OF CITIES IN WHICH THE SCHOOL ROOM FLOORS ARE WASHED AND  
SWEEPED AND THE SCHOOL ROOM WINDOWS WASHED  
WITH FREQUENCIES INDICATED

Frequency	Cities where floors are washed with frequency indicated	Cities where floors are swept with frequency indicated	Cities where win- dows are washed with frequency indicated
Daily .....	1	574	1
Once in 2 days.....	1	49	1
Once in 3 days.....	3	86	..
Weekly .....	36	6	22
Once in 2 weeks.....	27	2	8
Once in 3 weeks.....	8	..	5
Monthly .....	135	2	117
Once in 2 months.....	50	1	84
Once in 3 months.....	140	..	139
Once in 5 months.....	115	2	111
Once a year .....	57	..	31
As needed .....	68	10	139
Never .....	44	..	5
Not reporting .....	73	26	95
Total .....	758	758	758

Adjustable desks, which can be fitted to the size of the pupils, are more common proportionately in the North Atlantic states than elsewhere. In the country, as a whole, they are in use in practically half of the cities. They are more common in the North than in the South. The figures showing the number of cities where they are in use, and the per cent which these are of the entire number reporting, are as follows:

NUMBER OF CITIES USING ADJUSTABLE DESKS IN THEIR SCHOOLS

Division	Number having adjustable desks	Per cent having adjustable desks
North Atlantic .....	213	69
South Atlantic .....	12	27
South Central .....	18	27
North Central .....	92	32
Western .....	23	44
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United States .....	358	47

Just as highly perfected methods for cleaning are not efficacious unless they are frequently used, so adjustable desks are not beneficial unless they are frequently adjusted to the size of the children using them. These 358 cities having adjustable desks report that they are adjusted as follows:

CITIES ADJUSTING DESKS AT EACH INTERVAL NAMED

Interval	Number of cities
Daily .....	1
Once a month.....	3
Once in 3 months.....	14
Once in 5 months.....	12
Once a year.....	7
As needed .....	283
Never .....	1
Not reporting .....	37
	<hr/>
Total .....	358

Besides the indirect benefit and training which the children receive from having their class rooms hygienically administered there remains the question of the direct instruction they receive in theoretical and applied hygiene. To discover something of what is being done in this field facts have been gathered showing the number of cities having regular courses for teaching the children about the effects of the use of alcohol and tobacco, for training them in the avoidance and cure of tuberculosis, and in giving them instruction about first aid to the injured.

The figures show that ninety-five per cent of the cities teach their children the effects of alcohol and tobacco; sixty-one per cent have special courses on the prevention and cure of tubercu-

losis; and fifty-seven per cent give lessons in first aid. The figures showing the number of cities doing each kind of work in each of the five divisions, follow:

CITIES GIVING INSTRUCTION IN ALCOHOL AND TOBACCO, TUBERCULOSIS,  
AND FIRST AID

Division	Alcohol and tobacco	Tuberculosis	First aid
North Atlantic .....	293	203	165
South Atlantic .....	39	25	18
South Central .....	60	40	37
North Central .....	276	169	178
Western .....	49	25	32
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United States .....	717	462	430

The facts that have been so rapidly reviewed show that communities over the entire country are seeing the whole matter of the health of school children in a new light. Gradually they are beginning to ask, not whether they can afford to take steps to safeguard in the schools the welfare of their children but, whether they can afford not to take such steps. The movement, as a whole, constitutes both a sign and a result of the gradual awakening which has developed into a wave of interest in matters pertaining to the health of school children that is now sweeping over the civilized world.

We are beginning to realize that the public schools are a public trust. When the parents deliver a child to their care they have a right to expect that the child, under the supervision of the school authorities, will be safe from harm and will at least be handed back to them in as good condition as he was at first. Individual efficiency rests not alone on education or intelligence, but is equally dependent on physical health and vigor. Hence, if the state may make mandatory training in intelligence, it may also demand training to secure physical soundness and capacity. Much time will elapse before there will be brought to bear in all schools measures now so successfully pursued in some for preserving and developing the physical soundness of rising generations. Nevertheless, the movement is so intimately related to the future welfare of our country and is being pushed forward with such great energy and earnestness that it is destined to be successful and permanent.